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Research Article

The Effect of Hanging Ball Media Training on Improving Smash Skills in Volleyball Games in the Men's Team at Club PVG Garut

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Abstract:
This study aims to determine the effect of hanging ball media training on improving smash skills in volleyball games on the men's team at the Garut PVG club. Hanging ball media is a solution or strategy in practicing smash accuracy. Hanging ball smash training aims to provide habituation for athletes in measuring and knowing the height of the jump so that when playing volleyball athletes can hit the ball on target. Hanging ball training is a jumping exercise to reach the target ball by increasing the height of the hanging ball. The method used is experimental research method. The results showed that there was an effect of hanging ball media training in improving the smash skills of members at Club PVG Garut. This is evidenced by the calculated significance value in the pretest and posttest group t test of 0.017 smaller than 0.05 (Sig <0.05). The conclusion in this study is that there is an effect of training with hanging ball media on smash skills in volleyball games on the men's team of the Garut PVG club. In training with hanging balls that are carried out continuously can improve the ability of smash skills.
Keywords: Hanging Ball, Media, Smash, Volleyball

1. INTRODUCTION

Hanging ball media as a solution or strategy in practicing smash accuracy (Aji & Yudhistira, 2023). Hanging ball smash training aims to provide habituation for athletes in measuring and knowing the height of the jump so that when playing volleyball athletes can hit the ball on target. Training is basically an educational process that aims to help individuals improve their abilities. Hanging ball training is a jumping exercise to reach the target ball by increasing the height of the hanging ball (Riskiana & Nugraheningsih, 2023).

Improvement is a process of action to increase something or effort in an activity that is better than before. Improvement comes from the word level which means layers or layers of something that form a structure which means progress (Hawthorn et al., 2024). Therefore, I made a program to improve smash skills in volleyball games and also improvement as an achievement in the training process.

Skills are activities that require practice as an activity carried out by someone to achieve the expected target. Skills are skills or proficiency possessed by someone to do a job and can only be obtained through practice through training or through experience that is able to do what has been taught (Sukardi, 2022).

Therefore, skills are basic abilities that can produce something of value and increase for themselves and others. The skills in this discussion are smash skills in volleyball.

In volleyball, a smash attack is when you hit the ball into your opponent's defense area and force it to cross the net in order to score. A smash is a powerful stroke in which the hand makes complete contact with the ball at the top, causing it to travel down a steep path quickly. If the ball is higher above the net, it may also be struck with a rapid downward blow (Sánchez-Alcaraz et al., 2020). Smash or hard punch, also called spike, is the most widely used form of attack in an effort to get value or points by a team.

A game is something that can be played with certain rules so that there are winners and losers, usually games show rational strategies. The game is a process to determine the rules that are likely to minimize the actions for victory and defeat in various situations (Mahedero et al., 2021). The game also includes a set of rules that, when followed, create a competitive scenario between two teams or groups. The objective of each strategy is to maximize one's own victory or reduce the opponent's.

A team sport in which two teams compete against one another, volleyball is popular throughout the region and is enjoyed by a wide range of demographics, including adults and children. The majority of

volleyball players use the sport as a way to pass the time, work off extra energy, and even seek accomplishments that help them reach their sporting objectives. One of the numerous sports that is quickly gaining popularity among the general public, schools, and groups is volleyball. This is because playing volleyball is enjoyable and just requires basic equipment (Alita et al., 2021). Two teams of six players each compete in the game of volleyball.

Researchers have conducted interviews and observations, the data obtained from the results of interviews with the head of the PVG volleyball club named Mr. Yos Agan obtained data that the problems experienced by athletes at the PVG volleyball club are the accuracy of smash / timing is not optimal. This can be seen when training the ball that is hit is still not right on target and the timing is not very accurate when doing smash and even the ball often comes out of the opponent's field area. PVG volleyball club players or athletes totaling 20 men who take part in training activities, the fact is that in doing smash 60% of athletes from all of them are not on target.

Based on the results of these interviews and observations, the researchers concluded that the importance of smash training using proper and efficient techniques, and researchers focus on the men's team because the men's team always participates in championships between clubs in Garut Regency. Therefore, researchers are interested in conducting research using hanging ball media on smash skills at the PVG club.

This is done with the aim of knowing how much influence hanging ball media training has on improving smash skills in volleyball games on the men's team at the PVG Garut club. In overcoming the obstacles and problems of smash accuracy in the PVG volleyball club athletes, the researchers used hanging ball media as a solution or strategy in practicing the accuracy of hitting the ball and also the timeming accuracy when doing smash. This is in line with the opinion (Keswando et al., 2022).

The aforementioned statement clarifies that in order to become proficient at smash skill method, one must practice hitting the ball with accuracy. Otherwise, the smash results would be erroneous and undirected. If physical condition training, such as hanging ball media training, is provided, this will succeed. According to earlier studies, class IX students at SMP Negeri 13 Bekasi City saw an improvement in their volleyball smash learning outcomes when they used drilling and hanging ball media. This is evident from the fact that the initial condition observation was 43.60%, rising to an average value of 74.15% in cycle I and 81.65% in cycle II (Manullang & Ngatimin, 2023). Moreover, consistent with research Purnomo et al. (2022) this indicates that the hypothesis is accepted because the mean scores from the pre- and post-tests are higher than 0.5. This is evident from the information gathered during hypothesis analysis and testing. The equation that occurs in research is in terms of variables. The dependent variable that the author examines is the improvement of smash skills while the independent variable is hanging ball media training. Besides the similarities, there are also differences between these two studies.

The author believes that with hanging ball media training the expected smash skills will be achieved. Referring to the description above, the author is very interested in researching with the title The Effect of Hanging Ball Media Training on Improving Smash Skills in Volleyball Games in the Men's Team at Club PVG Garut.

2. MATERIAL AND METHOD

A pre-experimental type experiment with a single group pretest-posttest design is the research methodology employed. This study was implemented at the PVG Volleyball club in Garut Regency between December 2022 and March 2023.

The sample is part or amount of the population so that the number of sample members to be used as data sources depends on the desired level of confidence (Bauer et al., 2021). From this statement, it can be concluded that this research uses saturated / total sampling. While saturated sampling / total sampling is a sample selection technique when all members of the population are used as samples. Therefore, the samples taken in this study were all members who practiced at the Garut PVG club as many as 20 people.

The instrument in this study is to use the smash / spike test. This smash aims to determine or measure skills in spike or attack with direction and speed (Huang et al., 2023). The purpose of this research instrument is to determine and measure skills in doing smash. The criteria in this instrument are the assessment taken from this smash test, namely the target number with the following criteria: (1) The score of spike accuracy is the number on the target target, (2) The ball that touches the target boundary, the largest number is taken, (3) Not scored, if the athlete touches the net or the ball falls outside the target. The following statistical methods of data analysis were employed in this study: (1) Normality Test, (2) Homogeneity Test, and (3) Hypothesis Test using T Test.

3. RESULT AND DISCUSSION

3.1 Result

A brief overview of the object of research and the location of this research is at Club PVG Garut, which is a sports facility established in 2018 by Mr. Yos Agan located in Rancabango Village, Tarogong Kaler District, Garut Regency. The research subjects used by researchers were members of the PVG Garut ball club as many as 20 athletes or players.

The data collected and analyzed is the data from the smash accuracy test results of the Garut PVG club participants, which were obtained from the research subjects totaling 20 respondents who were given training treatment by hitting the ball hanging. The following are the data used in supporting the research conducted by researchers, namely as follows:

Table 1. Pretest and Posttest Data

No	Name	Pretest					Amount	Posttest					Amount
		1	2	3	4	5		1	2	3	4	5	
1	Pria Pangestu	2	2	2	1	4	11	5	2	2	2	2	13
2	Wian Teguh	2	2	2	2	4	12	2	2	1	5	4	14
3	Saeful	1	1	2	5	4	13	5	4	1	2	2	14
4	Muhammad Rizpal	2	2	4	5	1	14	5	2	2	5	2	16
5	Ikhsan Muhammad	2	2	1	2	5	12	1	2	2	5	3	13
6	Fauji Rahmat	2	2	1	1	4	10	5	1	5	1	1	13
7	Rezka Aditiya	3	4	1	2	3	13	5	2	4	2	1	14
8	Rendi Hidayat	1	1	3	5	1	11	1	1	2	5	5	14
9	Fahri Septian	5	2	2	1	2	12	2	2	1	5	5	15
10	Rama	5	2	2	2	1	12	3	1	2	2	5	13
11	Dana	5	1	1	2	2	11	2	2	2	4	3	13
12	Rivan	2	2	1	5	2	12	1	2	2	5	4	14
13	Wildan	2	1	1	5	5	14	2	2	5	5	2	16
14	Aradea	2	2	5	1	4	14	5	2	5	2	1	15
15	Yogis	2	1	2	5	2	12	2	2	2	4	5	15
16	Yusuf	5	2	2	2	1	12	1	1	2	5	5	14
17	Dafa	4	2	2	1	1	10	2	2	5	2	5	16
18	Firli Firmansyah	2	2	2	5	1	12	3	2	4	1	5	15
19	Hikmal	5	1	2	2	3	13	5	5	2	2	2	16
20	Dion	3	2	2	2	5	14	1	1	5	5	4	16

The player received treatment for three sessions per week for a total of twelve meetings. Following this, a final test was conducted to see if the player's smash accuracy had improved. The initial test was designed to measure the player's smash accuracy prior to receiving training. The two variables are represented by X1 for the Pre-Test group and X2 for the Post-Test group to facilitate research work. The research data's descriptive analysis findings can be shown in the following ways:

Represented by X1. the findings of a descriptive study conducted using pretest data prior to receiving hanging ball instruction. Descriptive analysis obtained a maximum value of 14, a minimum of 10, a mean of 12.20 sum 244, and a standard deviation value of 1.240. Meanwhile, the posttest denoted by X2 obtained a maximum value of 16, minimum 13, mean 14.45 sum 289, and a standard deviation value of 1.146. The following is a table of descriptive analysis calculations of volleyball pretests and posttests using IBM SPSS Statistic 23 software, which is as follows:

Table 2. Descriptive Analysis

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
No	20	1	20	210	10.50	5.916
Pretest	20	10	14	244	12.20	1.240
Posttest	20	13	16	289	14.45	1.146
Valid N (listwise)	20					

It is evident from table 2 above that there is an increase from the initial test results to the end test results of the smash results of the Garut PVG volleyball club. The statistical data above illustrates the description of the smash result data produced by training with hanging balls. The average final test value of 14.45 and the average first test result of 12.20 both demonstrate this.

A preparatory test for data analysis, which comprises a homogeneity and normality test, will be conducted prior to data analysis. The purpose of the prerequisite test is to ascertain whether or not parametric statistics can be used to evaluate the collected data. If it meets the requirements, then parametric statistical analysis can be carried out, but if it does not meet the requirements, the data analysis used is non-parametric statistics. The results of the prerequisite analysis test are presented below:

Chi Square testing is used to determine normality. By comparing the Asymp Sig price with 0.05, this test will determine whether to accept or reject the hypothesis that the sample is representative of a normally distributed population. If Asymp Sig is more than 0.05, the criteria accept the hypothesis; if it does not, the hypothesis is rejected.

Table 3. Normality Test Results

Test of Normality						
	Kolgonorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Asymp. Sig.	Statistic	df	Asymp. Sig.
Pretest	.214	20	.017	.906	20	.055
Posttest	.203	20	.031	.860	20	.008

From the table above the price of Asymp. Sig of the pretest variable is 0.17 and the post test is 0.31. Because the Asymp.Sig prices of the two variables are all greater than 0.05, the hypothesis that the sample is based on a normally distributed population is accepted.

The homogeneity test uses the F test. This test will test the hypothesis that the variances of these variables are the same, to accept or reject the hypothesis by comparing the price of F calculation (Fcount) with F from the table (Ftable) at a significant level $\alpha = 0.05$ and the degree of freedom used. The criterion is to reject the hypothesis if the Fcount price is greater than or equal to the Ftable price at the significant level used, in other cases reject the hypothesis. Another way to reject or accept the hypothesis is to compare the calculated Significant price with 0.05. the criterion is to accept the hypothesis if the calculated significance price is greater than 0.05. The results of the homogeneity test can be seen in the table below:

Table 4. Homogeneity Results

Level Statistic	df_1	df_2	Sig.
.941	3	16	.444

Table 4 shows the overall test significance value for the initial test and final test in volleyball games which is 0.444, so the significance value is more than 0.05, and it can be concluded that the population has a homogeneous meaning.

Analysis can be done using hypothesis testing on the pretest group and posttest group on the results of the smash accuracy test measurements. In this test, we will test the hypothesis whether the effect of hanging ball hitting training can improve the smash skills of pvg garut club participants. To accept or reject the hypothesis by comparing the price of f calculation (f_{count}) with f from the table (f_{tabel}) at a significant level $\alpha = 0.05$ and the degree of freedom used, while by comparing the calculated t price with the t table price. The criterion is to accept the hypothesis if the price of t is smaller than the price of t table with the degree of freedom (dk) = n-1, and the error rate of 0.05.

To determine the effect of hanging ball media training can improve smash skills of pvg garut club participants, the f-test and t-test of two equal samples or paired samples t test are used. The results of the f-test and t-test are shown in the following table:

Table 5. T Test Result

Coeficients[a]					
Unstandardized Coefficients			Standardized Coefficients		
Model	**B**	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	3.976	3.143		1.265	.222
Posttest	.569	.217	.526	2.625	.017

Based on table 5 above, it is known that the sig value (2 tailed) 0.017 t-count <0.05 so that it means that the alternative hypothesis (Ha) is accepted and the null hypothesis (H0) is rejected. Furthermore, the t-count value is 2.625 and the t-table in the df (11) column with a significance level of 0.05, the t-table value = 1.795, so the value of 2.625> 1.795 means that Ho is rejected and Ha accepts. This explains that the null hypothesis (H0) is rejected so that the alternative hypothesis (Ha) is accepted.

3.2 Discussion

Based on the results of this study, the results can be taken, namely the effect of hanging ball media training on smash skills in volleyball games on the men's team at Club PVG Garut. The results showed that there was an effect of hanging ball media training on improving the smash skills of members at Club PVG Garut. This is evidenced by the calculated significance value in the pretest and posttest group t test of 0.017 which is smaller than 0.05 (Sig < 0.05). Volleyball is a team sport where each player is required to master the game technique. Some techniques in volleyball games require physical conditions or abilities in order to play well. Volleyball is a sport played by dropping the ball into the opponent's field as often as possible during game time. These activities help players to score certain scores.

Volleyball is played in teams with each team having 6 players, to separate the two fields, the teams are separated by a net with a net size for men with a height of 2.43 meters while for women 2.24 meters (Weng et al., 2024).

One of them is the smash technique, an attack motor that produces the most points in a volleyball game. Smash is a strong attack or blow where the hand is in full contact with the ball at the top, so that the ball runs steeply with high speed, if the ball is higher above the net, the ball can be hit sharply downward (Sukardi, 2022). Service as the beginning of the game starts, passing as a defense to create an attack because with good passing it will make it easier for the setter to pass to the smashter, and block as a dam to hold the ball hit by the opponent.

Smash is the most exciting part or the art of volleyball. It is also the most difficult technique to learn in volleyball. In order for the ball to drop in a forbidden region (field), the spiker must leap into the air, aim to strike a sharp ball, a moving item (ball), and cross a net. Smash occurs quite quickly after the ball reaches the feeder, thus the spiker takes a preemptive step before feeding the ball and leaps as high as he can, raising his arms in preparation to strike the approaching ball. The spiker instantly uses greater wrist action to smash the ball as fast as possible when it approaches their hand (the spiker's jump comes before the bait).

Practice hitting the hanging ball is done to improve the accuracy of the hanging ball media smash as a solution or strategy in practicing smash accuracy (Huang et al., 2023). Practice is basically an educational process that aims to help individuals improve their abilities. Hanging ball training is a jumping exercise to reach the ball target by increasing the height of the hanging ball (Mahedero et al., 2021).

The hanging ball referred to in this study is a ball that is hung with a hanging ball media tool, using a volleyball at a height according to the player's reach. Media as an intermediary or introductory tool that is reviewed from the readiness of its procurement, the media is also a device that is presented using equipment. The word media comes from Latin Medius which literally means “middle” intermediary or introducer from the sender to the recipient of the message (Sgrò et al., 2021). Hanging ball media is a curved side space bounded by one plane. The ball is obtained from a half-circle that is rotated one full rotation or 360 degrees on its center line (Aichner et al., 2021).

The speed and accuracy of striking the ball can be improved by practicing mechanically hitting it. Training the beginning of the step and the accuracy of striking the ball can help develop the response to striking the ball correctly, as well as help develop high ball achievement and high jump skills. Athletes that perform striking workouts indirectly leap in the same way as they would when performing a smash. Mechanically speaking, hitting the ball with hanging balls can help strengthen the physical aspects of accuracy and speed. Repetition of the step start and ball hitting precision trains the body's reaction to hitting the ball in the right place and helps develop high ball reach and high jump skills.

CONCLUSION

The study's conclusion, based on the discussion and results, is that the men's team of the Garut PVG club's smash skills in volleyball matches are impacted by training with hanging ball media. Constantly practicing with hanging balls might help you become more proficient at smash techniques. The average value increased from the pre-test result of 12.20 to the post-test result of 14.45, according to the descriptive analysis. The results of the normalcy test yielded the Asymp. As both the pre- and post-test Sig values are greater than 0.05, the hypothesis is accepted. The hypothesis is accepted in the homogeneity test since the computed significance of 0.444 is larger than 0.05. The results of the t-test obtained the calculated t value of 2.625 is greater than the t-table which is 1.795, so the hypothesis is accepted. Based on the research results that have been obtained by analyzing and testing hypotheses, the following conclusions can be drawn: There is a significant effect of hanging ball media training on improving the accuracy of smash players of the Garut PVG Volleyball Club.

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